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ABSTRACT

This paper reports the results of an evaluation of a didactic-experiential program designed to improve memory functioning in healthy older adults with memory complaints, and to allay their concerns (in this case, largely unfounded) about the decline of their memory. The 7-week workshop met weekly for 2 hours, each session consisting of a lecture on one aspect of memory function and aging, and practice of a memory-enhancing strategy. The sample consisted of 13 older adults, 12 females and 1 male, with a mean age of 70.9 years. On pretesting, participants reported moderate concern about the adequacy of their memory despite demonstrating accurate recall of recent and remote information. Additionally, they evidenced moderate life satisfaction and mild depression. After completing the program, participants showed a decline in worry about their memory and a slight increase in their life satisfaction and mood. Moreover, participants' satisfaction with the program was high. Results of this preliminary study suggest that memory concerns of older adults can be alleviated and morale improved by the provision of factual information about memory and aging and by instruction in specific techniques for improving memory performance. (Author)

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Improving Memory in the Aged*

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Abstract

This paper reports the results of an evaluation of a didactic-experiential program designed to improve memory functioning in healthy older adults with memory complaints and to allay their concerns (in this case, largely unfounded) about the decline of their memory. The seven week workshop met weekly for two hours, each session consisting of a lecture on one aspect of memory function and aging and practice of a memory-enhancing strategy. The sample consisted of thirteen older adults, twelve females and one male, with a mean age of 70.9 years. On pretesting, participants reported moderate concern about the adequacy of their memory despite demonstrating accurate recall of recent and remote information. Additionally, they evidenced moderate life satisfaction and mild depression. After completing the program, participants showed a decline in worry about their memory and a slight increase in their life satisfaction and mood. Moreover, participants' satisfaction with the program was high. Results of this preliminary study suggest that memory concerns of older adults can be alleviated and morale improved by the provision of factual information about memory and aging and by instruction in specific techniques for improving memory performance.

Improving Memory in the Aged

Memory loss is one of the most common complaints of older adults. While there is a gradual decline in memory with age, loss of memory is often exaggerated by older adults (Zarit, 1979). Moreover, memory complaints frequently have little relationship to memory performance since such complaints are strongly related to such variables as morale and depression. Previous research (e.g. Labouvie-Vief & Gonda, 1976; Weston et al., Note 1; Zarit, Cole & Guider, 1981) has shown that training may improve the memory functioning of healthy older adults and reduce their complaints about their memory.

Many older adults complain of memory difficulties manifested by forgetting names and dates, the location of an object, or what one was about to say. These and other everyday memory lapses can be troublesome to older people, especially since they often interpret these incidents as signs of approaching "senility." The stereotype of the forgetful older adult then may become a self-fulfilling prophesy.

While substantial memory loss is associated with certain physical and mental illnesses in old age, most older adults are relatively healthy and the decline in memory that they experience with age is minimal. Among the memory processes, the largest decline with aging occurs in the acquisition of new information (Craik, 1977). Older adults frequently do not employ mediation methods in learning new information and the information they do acquire may be poorly organized (Craik, 1977; Zarit, Note 2). Clearly, information that is not learned cannot later be retrieved (Zarit, Gallagher & Kramer, 1981).

Some attempts have been made to improve the memory functioning of older adults through training (e.g. Zarit, Cole & Guider, 1981; Zarit, Gallagher & Kramer, 1981). Such training programs, which have concentrated largely on the acquisition of cognitive

strategies, have had mixed results regarding improvement in memory performance, but memory complaints often decreased. The benefits of memory training, then, may consist largely of reassurance and improved morale rather than heightened memory performance. Moreover, these findings highlight the discrepancy between subjective and objective measures of memory and suggest that among the healthy aged, variables other than memory impairment may be important influences on memory concerns (Zarit, Gallagher & Kramer, 1981).

Given that memory complaints may have little relationship to actual memory performance, it is understandable that to lower memory complaints, it might not be necessary to alter performance. Several studies have shown that there is a strong positive relationship between depression and memory complaints (Kahn, Zarit, Miller & Niederehe, 1975; Weston et al., Note 1). Thus, changes in depression leading to increased morale might reduce memory concerns.

The study reported here was a preliminary evaluation of a didactic-experiential memory training program for community-residing older adults with concerns about their memory. The goals of the program were to decrease memory concerns and to improve memory performance. To reduce memory concerns, the program provided factual information about normal and abnormal changes in memory with age and thereby, offered reassurance about the normality of everyday forgetfulness. To improve memory performance, participants were taught strategies to enhance their everyday memory functioning and opportunities were provided to practice these techniques. It was hypothesized that older adults who participated in this program would benefit from the training as evidenced by improvements in their memory performance, declines in their memory concerns and increases in their life satifaction and mood.

The memory training program met weekly for two hours over a seven week period. Each session consisted of two parts: in the first hour, an expert

on one aspect of memory functioning and aging gave a brief lecture on this area followed by a question and answer period; in the second hour, participants were divided into small groups to discuss the lecture material and its everyday applications and to practice techniques for enhancing memory performance. (See Figure 1). In both components of the program, emphasis was placed on normal changes in memory with age and on strategies for acquiring and retaining new and old information, e.g., use of mnemonic aids. This training format had been developed by the workshop leaders who were professional staff members and volunteer peer counselors.

Program participants were recruited from the community by a variety of means. These included newspaper advertisements, radio announcements, posters placed in senior citizen centers, retirement centers, housing for the aged, and nutrition sites, referrals from previous participants, peer counselors and professional staff at the clinic, and word of mouth. The only selection criteria were advanced age (undefined) and a willingness to participate. The workshop was sponsored by a geriatric clinic in a department of internal medicine at a large university medical center. It was not necessary, however, for workshop members to be clinic patients. The program was offered free of charge.

To assess the effects of this memory training workshop, participants were given several measures before and after the program. These instruments assessed their memory concerns, their memory functioning, and their life satisfaction and mood. A memory performance questionnaire evaluated memory for both recent and remote personal and general information. Most of the items were drawn from a questionnaire devised by Robert Kahn and his colleagues at the University of Chicago. Since a number of the items included content that was specific to Chicago, these were adapted for use in this community. A memory concerns questionnaire, developed by the workshop staff, inquired about the frequency of common memory lapses and

reactions to them. Life satisfaction was assessed by the Life Satisfaction Index A and mood by the Beck Depression Inventory. In addition, background information, including basic sociodemographic data, health status, and recent life events, was collected on all participants. Finally, a program evaluation questionnaire, designed by the workshop leaders, inquired about satisfaction with various components of the program as well as overall satisfaction.

Participants in this study were 13 older adults ranging in age from 59 to 86 years with a mean age of 70.9 years. Twelve were female and one was male. Of these, seven were married, four were single and two were widowed or divorced. All were residing in the community. The educational level of the participants was relatively high with nearly all having obtained some schooling after high school. Seven persons had obtained bachelor's degrees and of these, four also had master's degrees. Among those participants who reported their past occupation, four were professionals, three performed office work and two were in business. While no one was employed full-time, three worked part-time.

Nearly all participants reported having at least one chronic illness, the most common being arthritis, hypertension and loss of sensory acuity (auditory or visual). Every person took at least one medication regularly and a few took as many as four drugs per day. None of the illnesses experienced by participants and none of their medications were judged to have significant effects on their memory performance. Moreover, all were able to perform activities of daily living with little or no assistance. Very few participants reported having experienced any major life changes in the past two years, and thus, their levels of stress may have been low. However, the completeness of these data on recent life events is suspect because it was later discovered that some individuals who had experienced significant life changes had not noted them, e.g.,

serious illness of a spouse.

At pretesting participants' mental status was intact as indicated by their high scores on the Mental Status Questionnaire (MSQ). Rather than administer the MSQ items consecutively, they were embedded in various instruments to avoid arousing participants' concern that the researchers expected them to have mental impairment. When questioned about their memory concerns, participants reported having most difficulty in remembering names, birthdays, and locations of items to be retrieved. Comparing their memory for recent and remote events, some individuals reported no difference; of those who noted a difference, the majority indicated that it was easier to remember remote than recent events. All participants reported a decline in their memory functioning over the past five years though this change had been rarely observed by others. Nonetheless, this perceived decline in memory performance embarrassed or worried most participants on occasion.

All participants had perfect of near perfect scores on the memory performance questionnaire indicating that they were not experiencing any substantial difficulty in remembering recent or remote personal or general information. Thus, at the pretest, participants' concerns about their memory far exceeded the decrement in their memory performance.

Participants' pretest scores on the Life Satisfaction Index A and on the Beck Depression Inventory revealed that most participants were fairly satisfied with their lives and were experiencing only mild symptoms of depression. However, many participants had difficulty choosing among the response alternatives on these tests, claiming the choices did not express their feelings accurately. They preferred to create their own response alternatives or develop their own test items. As a result, it was difficult to score their tests using the standard criteria.

At the conclusion of the memory training program, the Mental Status Questionnaire and the memory performance questionnaire were not readministered. The MSQ was given only at the pretest because its sole function was the identification of individuals with significant cognitive impairment since such persons were to be excluded from the study. While the plan had been to give the memory performance questionnaire pre- and posttest, it was not administered posttest because participants received nearly perfect scores on pretest, leaving little margin for improvement.

On posttesting, participants reported having the most difficulty remembering names, locations of possessions, items to be retrieved and birthdays. When asked to compare their memory for recent and remote events, most individuals noted no difference between them. The majority of participants expressed some concern about their memory and reported feeling worried or embarrassed about forgetting on occasion. In addition, they indicated slight dissatisfaction with their lives and evidenced mild depression.

Comparison of pre- and posttest data reveals that participants made gains on most measures (See Table 1). Improvements were reported in all but one of the seven areas of memory which were assessed (remembering appointments, doctor's instructions, what you were going to say, what you went to get, names, birthdays.) There was no change in participants' memory for the location of possessions. Of those areas of memory which improved, gains made in remembering birthdays and items to be retrieved approached statistical significance. Comparing recent and remote memory, fewer participants noted a difference between them on posttest than on pretest. Moreover, participants reported feeling less worried or embarrassed about forgetting and less "down in the dumps" than on pretest, with the latter finding approaching statistical significance. Lastly, participants reported a slight increase in life satisfaction and a slight decrease in

depression at posttesting. Overall, the test results indicate that the memory training workshop had some slight positive effects on participants' memory concerns and their life satisfaction and mood.

To assess participants' opinions of the memory training workshop program, evaluation questionnaires were administered to those who attended the last meeting. Participants reported high satisfaction with most of the lectures. (See Table 2). The lecture receiving the most positive evaluation was on normal changes in memory with aging, and the lecture with the least positive evaluation was on nutrition as it affects memory. The small group exercises received more mixed ratings than the lectures. The most positive evaluation of a small group exercise was given to the review of group members' names using an association strategy and the most negative evaluation to the exercise relating memory performance and mood state. All participants reported having derived some benefit from the memory training program. While suggestions for improving the memory program were also solicited, few were offered. Of these given, the most frequent recommendations were to increase the utilization of audiovisual aids to enhance retention of the material, and to provide weekly reviews of the information presented in the lectures and in the small group exercises.

In summary, this didactic-experiential memory training program for older adults had some positive, though mild, effects on its participants lending partial support to the study hypotheses. Prior to the memory training program, all participants demonstrated adequate memory performance yet then expressed concerns about their memory and evidenced mild depression and slight dissatisfaction with their lives. Small though nonsignificant gains were made by the majority of subjects in these three domains at the end of the program. In addition, participants reported high satisfaction with the program and judged their memory functioning to be improved. These findings suggest that presentation of

information on normal and abnormal changes in memory with aging and demonstration and practice of strategies for enhancing memory functioning may provide knowledge as well as offer reassurance to older adults and thus alleviate some of their memory concerns and the life dissatisfaction and depression that such concerns may generate.

This pilot study had several strengths. First, the target population of this memory training program was well functioning older adults who represent the majority of aged persons, i.e., those who reside in the community. Second, the training served both as a preventive measure and an early treatment for memory problems manifested in everyday life. Likewise, the tools used to evaluate subjects' memory concerns and memory performance were practical measures rather than laboratory tasks which often have little relevance to real life. Third, a systematic evaluation of the program was conducted by evaluating participants before and after the training. Fourth, the sample, while highly advantaged socioeconomically and therefore non-representative of the current elderly population in the United States, is likely to typify the elderly of the future. Moreover, the homogeneity of the sample with regard to sociodemographic characteristics eliminated a possible source of variability.

The generalizability of the study findings, however, is limited by several factors. First, the sample was very small because the study was a pilot project, and no comparison or control group was included. As a result, statistical analyses were primarily descriptive in nature, and significant differences between pre- and posttest data were nearly impossible to obtain due to the small sample size. Moreover, the instruments which assessed memory concerns and memory performance, while practical, have not undergone testing for validity and reliability and, therefore, it is not known whether they are valid and reliable tools. In audition, they may not have been sensitive to slight differences,

limiting their utility with a high-functioning older adult population. To the surprise of the authors, the standardized instruments, the Life Satisfaction Index A and the Beck Depression Inventory, elicited many complaints from participants regarding the small number of response alternatives (three or four) and the wording of the items. These complaints were unexpected, especially on the Life Satisfaction Index, since this test had been developed specifically for older adults. However, the Beck Depression Inventory may not have been well suited for the assessment of mild depression in healthy older adults because it was developed to detect clinical depression in a young adult population.

While this study was very preliminary and its findings tentative, several directions for future research on memory training programs for older adults are recommended. First, memory training may be more beneficial if offered for more than six weeks since substantial behavior change is difficult to induce in such a short period. Second, such a program might consider soliciting a large and diverse membership since older adults with mild memory deficits may profit more from this training than older adults with no memory deficits. Third, comparison of program participants with a matched group of non-participants is advised since this would control for the effects of the passage of time. Fourth, it is suggested researchers select instruments for evaluating memory concerns and memory performance which are practical as well as valid and reliable, though no such tools are known to the authors. Development of such tools is direly needed. Such tools, if intended for use with high functioning older adults, need to be sensitive to slight changes since large gains and decrements are unlikely to be evidenced frequently in this population. Fifth, variables that contribute to or affect memory concerns in the aged, i.e. morale, depression, warrant closer examination. Finally, research is needed to determine those components in memory training that are critical to the improvement of participants' memory

performance and the alleviation of their memory concerns. The high frequency of memory complaints among older adults validates the need for further research in this area.

Reference Notes

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2. Zarit, S.H., Gallagher, D., Kramer, N., & Walsh, D. The effects of group training on memory and memory complaints. Paper presented at the meeting of the American Psychological Association, San Francisco, August 1977.

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Figure 1

Didactic-Experiential Memory Training Program

Lectures

- Normal Changes in Memory with Aging
- Diseases That Affect Memory
- Drugs That Affect Memory
- Nutrition as it Affects Memory
- Effects of Depression and Stress on Memory
- Panel of People Who Use Their Memory in Their Work
- Current Research on Memory

Exercises

- Review of Names of Group Members
- Association of Names with Physical Features and Other Characteristics
- Classification and Categorization
- Attention and Concentration on Detail
- Demonstration of the Relationship between Mood State, Life Stress and Memory Performance
- "Linking" Method
- Review of Various Exercises

Table 1

Participants' Memory Concerns, Life Satisfaction and Depression

	n	Pretest M	Pretest SD	Posttest M	Posttest SD	t	Significance Level
Memory Concerns							
Remembering the Location of Possessions	13	2.62	.77	2.62	.77	0	1.0
Remembering Appointments	13	3.38	.65	3.54	.66	-1.48	.17
Remembering Doctor's Instructions	13	3.54	.66	3.62	.51	- .56	.59
Remembering What You Were Going to Say	12	2.85	.38	3.00	.43	-1.49	.17
Remembering What You Went to Get	12	2.54	.52	2.83	.72	-1.91	.08
Remembering Names	12	1.92		2.17	.83	-1.39	.19
Remembering Birthdays	11	2.63		2.91		-1.94	.08
Worry About Forgetting	13	2.77	.93	3.00	.91	-1.00	.34
Feel "Down in the Dumps"	13	3.23	.73	3.46	.66	-1.90	.08
Feel Embarrassed About Forgetting	13	3.00	.82	2.92	.76	.43	.67
Life Satisfaction							
Life Satisfaction Index A	13	10.95	3.78	11.23	4.76	- .48	.64
Depression							
Beck Depression Inventory	13	4.17	3.41	3.82	3.35	.68	.51

Table 2

Participants' Evaluation of the Memory Training Program

Lectures	n	M	SD	Range
Normal Changes in Memory with Aging	11	3.64	.50	3–4
Diseases That Affect Memory	13	3.46	.52	3–4
Drugs That Affect Memory	11	3.55	.52	3–4
Nutrition as It Affects Memory	12	3.00	.74	2–4
Effects of Depression and Stress on Memory	10	3.40	.70	2–4
Panel of People Who Use Their Memory in Their Work	8	3.00	.76	2–4
Current Research on Memory	8	3.38	.52	3–4
Exercises				
Review of Names of Group Members	12	3.58	.51	3–4
Association of Names With Physical Features and Other Characteristics	12	3.08	1.00	1–4
Classification and Categorization	11	2.91	1.14	1–4
Attention and Concentration on Detail	12	2.92	.90	1–4
Demonstration of the Relationship Between Mood State and Memory Performance	8	2.63	1.41	1–4
"Linking" Method	8	3.38	.92	2–4
Review of Various Exercises	9	2.89	.93	1–4

Note. Scale: 1 = Poor
4 = Excellent